suspended platform, said thermopile crossing said suspended platform from said first set of junctions to said second set of junctions.

4. The microcalorimeter of claim **1** wherein said heater is comprised of a first heating element to heat said reference zone and a second heating element to heat said sample zone, each said heating element separately supplied with power.

5. The microcalorimeter of claim **4** wherein said microcalorimeter is calibrated over a temperature range to produce a power profile, said calibration performed by heating said zones a specified number of degrees in a plurality of successive steps across said temperature range and adjusting power supplied to at least one of said zones at each step so that said thermopile produces approximately a null voltage output at each step across the entire temperature range.

6. The microcalorimeter of claim **5** wherein a substance to be evaluated is located in said sample zone, said microcalorimeter scanned over at least a portion of said temperature range according to said power profile, said thermopile producing a differential voltage between said reference zone and said sample zone at each step, said differential voltage being the result of the presence of said substance.

7. The microcalorimeter of claim **6** wherein said substance is a thin film.

8. The microcalorimeter of claim **1** wherein said chip is produced with a standard CMOS process.

9. The microcalorimeter of claim **8** wherein said substrate is silicon and further including a layer of dielectric material, and conductors for said plurality of thermocouple junctions, said at least one pit etched into said substrate.

10. The microcalorimeter of claim **9** wherein the layer of dielectric material is silicon dioxide and the conductors are polysilicon and aluminum.

11. The microcalorimeter of claim **8** wherein said substrate is gallium arsenide and further including a layer of dielectric material, and metals for said plurality of thermocouple junctions, said at least one pit etched into said substrate.

12. The microcalorimeter of claim **1** wherein said heater is comprised of a single heating element and wherein said microcalorimeter is calibrated over a temperature range to produce a thermopile voltage profile over said temperature range, said calibration performed by heating said zones a specified number of degrees in a plurality of successive steps across said temperature range.

13. The microcalorimeter of claim **12** wherein a substance to be evaluated is located in said sample zone, said microcalorimeter scanned across at least a portion of said temperature range, said thermopile producing a voltage between said reference zone and said sample zone at each step, the difference between the produced voltage and said thermopile voltage profile at each step being the result of the presence of said substance.

14. The microcalorimeter of claim **1** wherein said heater is an oven that encloses said zones.

15. The microcalorimeter of claim **14** wherein said microcalorimeter is calibrated over a temperature range to produce a thermopile voltage profile over said temperature range, said calibration performed by heating said zones a specified number of degrees in a plurality of successive steps across said temperature range.

16. The microcalorimeter of claim **15** wherein a substance to be evaluated is located in said sample zone, said microcalorimeter scanned across at least a portion of said temperature range, said thermopile producing a voltage between said reference zone and said sample zone at each step, the difference between the produced voltage and said thermopile voltage profile at each step being the result of the presence of said substance.

17. The microcalorimeter of claim **14** wherein said chip is produced with a standard CMOS process.

18. The microcalorimeter of claim **17** wherein said substrate is silicon and further including a layer of dielectric material, and conductors for said plurality of thermocouple junctions, said at least one pit etched into said substrate.

19. The microcalorimeter of claim **17** wherein said substrate is gallium arsenide and further including a layer of dielectric material, and metals for said plurality of thermocouple junctions, said at least one pit etched into said substrate.

20. The microcalorimeter of claim **18** wherein the layer of dielectric material is silicon dioxide and the conductors are polysilicon and aluminum.

* * * * *